

Infectious Bronchitis (IB)

By: Caroline Gillies, MSc and Dr. Anastasia Novy

Etiology

Infectious bronchitis virus (IBV) is a type of coronavirus belonging to the *Coronaviridae* family that causes clinical disease in chickens. It is an irregular-shaped single-stranded RNA virus. Like other coronaviruses, the viral replication and recombination process can rapidly produce different strains of the virus. The severity of an IB infection depends on the virulence of the strain, immune status of the host, age of the bird, and the environment. An IBV infection can reduce the birds immune function as well, leaving them vulnerable to secondary infections such as colibacillosis and mycoplasma. Infected broiler flocks will typically show clinical signs of IB around at 26 days of age.

IBV can be inactivated by heating to 60°C for 30 minutes. When temperatures are below 0°C, IBV can linger in the environment for up to 56 days. The viruses resistance to changes in pH depend on the strain of virus.

Epidemiology and Transmission

IB affects chicken broiler, breeder, and layer flocks globally. The most common variant strains of IBV causing IB isolated in Ontario are California (CAL) 1737, Delmarva (DMV)/1639 and recently a GA08-related strain.

IBV is not transmitted vertically (i.e. from parent to offspring). The main routes of transmission are inhalation of aerosol particles containing the virus, ingestion of contaminated material, or direct contact with fomites (i.e. any object contaminated with the virus; boots, clothes, gloves, equipment, etc.).

Clinical signs

- Difficulty breathing, gasping
- Snickering
- Tracheal rales

GUELPHPOULTRY



VETERINARY SERVICES

Phone: (519) 821-5963
Fax: (519) 821-2841
Email: guelphpoultry@gpvs.ca

519 Maltby Road West
Guelph, ON N1L 1G3

- Nasal discharge
- Conjunctivitis
- Lethargy
- Reduced feed and water intake
- Reduced egg production
- Reduced eggshell quality
- Increased mortality
- Higher condemnations

Treatment

There is no specific treatment for IB. A post-mortum examination by a veterinarian is recommended to rule out any secondary bacterial infections.

A full wash and disinfection is recommended after an IBV outbreak to prevent an infection in the subsequent flock. Heating the barn as high as possible, without causing damage to equipment, to inactivate any viral particles before placement of the next flock can be helpful as well. For specific recommendations on which products to use, reach out to GPVS for a consultation.

Prevention

The Mass and Conn strains of IBV are regularly vaccinated for at the hatchery. There are different brands and types of vaccine available, please reach out to GPVS to discuss what would work best for your flock.

Laying hens are typically vaccinated and receive multiple boosters for the Mass/Conn strains. Broilers sometimes receive an IBV booster during grow-out at the discretion of a veterinarian. All vaccines require at least a 21-day withdrawal time before shipping.

Proper vaccination is essential for providing adequate immunity to the flock. Contact us or browse our website for information on proper vaccine application.

Once IBV is introduced to the environment, morbidity is usually 100%. Therefore, biosecurity is crucial for preventing an IBV infection.

Resources

Hassan, M.S.H., Ali, A., Buharideen, S.M., Goldsmith, D., Coffin, C.S., Cork, S.C., van der Meer, F., Boulianne, M., Abdul-Careem, M.F. Pathogenicity of the Canadian Delmarva (DMV/1639) infectious bronchitis virus (IBV) on female reproductive tract of chickens. *Viruses* (2021); 13: 2488. doi: <https://doi.org/10.3390/v13122488>

Jackwood, M.W., de Wit, S. Diseases of Poultry. *John Wiley & Sons Inc.* (2013); pg. 289-329. doi: <https://doi.org/10.1002/9781119371199>

Najimudeen, S.M., Hassan, M.S.H., Cork, S.C., Abdul-Careem, M.F. Infectious bronchitis coronavirus infection in chickens: multiple system disease with immune suppression. *Pathogens* (2020); 9(10): 779. doi: <https://doi.org/10.3390/pathogens9100779>

Ojkic, D., Susta, L., Martin, E. Genotyping of infectious bronchitis virus in Canada. *Journal of Veterinary Diagnostic Investigation* (2024); 36(6): 804-808. doi: <https://doi.org/10.1177/10406387241265955>